UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/065,787	11/19/2002	David S. Bettinger		4746

26878 7590 04/27/2004

DAVID S. BETTINGER
8030 COVENTRY
GROSSE ILE, MI 48138

EXAMINER	
HEWITT, JAMES M	
ART UNIT	**PAPER NUMBER**
3679	

DATE MAILED: 04/27/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

PTO-90C (Rev. 10/03)

Office Action Summary	Application No.	Applicant(s)	
	10/065,787	BETTINGER, DAVID S.	
	Examiner	Art Unit	
	James M Hewitt	3679	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on 10 February 2004.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) 1-8 is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) 1-8 is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1 and 6-7 are rejected under 35 U.S.C. 102(b) as being anticipated by Shafer (US 6,044,904).

With respect to claim 1, Shafer discloses a packing sealed expansion joint (see Figure 2) comprising: at least one generally cylindrical resilient and elastic seal (50) disposed in an annular packing chamber (48) defined between telescopically arranged outer (12) and inner (20) pipe members, and an outer circumferentially tensioned band and clamp (26, 28) positioned over said generally cylindrical resilient and elastic seal to produce a compressive force to radially deflect the outer pipe member and compress and deflect the elastic seal so that the outer and inner pipe members and the seal create and maintain a bearing and friction-loaded sealed relationship for fluid flow and varying temperatures between adjacent ends of two conduits during axial sliding and rotational relative movement of said outer and inner pipe members. Refer to column 3, lines 42-50.

With respect to claims 6 and 7, as the claimed fluids are not positively claimed as part of the invention (the expansion joint), the Examiner has not afforded significant

patentable weight to the fluids to be used in the joint. Shafer is considered to read on claims 6 and 7 insofar as Shafer's device is considered capable of transporting cryogenic fluid or rocket engine fuel reactant.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 2 and 5 are rejected under 35 U.S.C. 103(a) as being unpatentable over Shafer (US 6,044,904).

With respect to claim 2, it would have been obvious to one having ordinary skill in the art at the time the invention was made to employ a second band clamp about Shafer's second resilient and elastic seal (50), since it has been held that mere duplication of the essential working parts of a device involves only routine skill in the art. *St. Regis Paper Co. v. Bemis Co., 193 USPQ 8.*

Employing a second band clamp would help to further counteract the tendency of the pipe member (12) to expand in response to elevated gas temperatures in the pipe member (20).

With respect to claim 5, Shafer fails to teach that his outer and inner pipe members are composed of polymer composites. Nevertheless, it would have been obvious to one having ordinary skill in the art at the time the invention was made to use

polymer composites to form the material of Shafer's outer and inner pipe members since it has been held to within the general skill of a worker in the art to select a known material on the basis of its suitability for the intended use as a matter of obvious design choice. *In re Leshin, 125 USPQ 416.*

Claims 1-8 are rejected under 35 U.S.C. 103(a) as being unpatentable over McHughs (US 6,131,960) in view of Shafer (US 6,044,904).

With respect to claim 1, McHughs discloses a packing sealed expansion joint (14) comprising: at least one generally cylindrical resilient and elastic seal (44) disposed in an annular packing chamber (see Figure 3) defined between telescopically arranged outer (20) and inner (24) pipe members. McHughs fails to teach an outer circumferentially tensioned band and clamp positioned over said generally cylindrical resilient and elastic seal to produce a compressive force to radially deflect the outer pipe member and compress and deflect the elastic seal so that the outer and inner pipe members and the seal create and maintain a bearing and friction-loaded sealed relationship for fluid flow and varying temperatures between adjacent ends of two conduits during axial sliding and rotational relative movement of said outer and inner pipe members. Shafer teaches a packing sealed expansion joint (see Figure 2) comprising: at least one generally cylindrical resilient and elastic seal (50) disposed in an annular packing chamber (48) defined between telescopically arranged outer (12) and inner (20) pipe members, and an outer circumferentially tensioned band and clamp (26, 28) positioned over said generally cylindrical resilient and elastic seal to produce a

compressive force to radially deflect the outer pipe member and compress and deflect the elastic seal so that the outer and inner pipe members and the seal create and maintain a bearing and friction-loaded sealed relationship for fluid flow and varying temperatures between adjacent ends of two conduits during axial sliding and rotational relative movement of said outer and inner pipe members. Refer to column 3, lines 42-50. In view of Shafer's teaching, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify McHughs with a band clamp about his outer pipe over the seal (44) in order to further brace the outer pipe (against expansion due to elevated gas temperatures, vibration and other external forces) and to maintain sealing between the outer and inner pipes during thermal expansion, vibration, etc.

Note that the clamp about McHughs' device would produce a compressive force to radially deflect the outer pipe member and compress and deflect the elastic seal so that the outer and inner pipe members and the seal create and maintain a bearing and friction-loaded sealed relationship for fluid flow and varying temperatures between adjacent ends of two conduits during axial sliding and rotational relative movement of said outer and inner pipe members.

It should also be noted that both McHughs and Shafer are sealed expansion joints that carry exhaust gases.

With respect to claim 2, it would have been obvious to one having ordinary skill in the art at the time the invention was made to employ a second band clamp about McHughs' second resilient and elastic seal (58), since it has been held that mere

duplication of the essential working parts of a device involves only routine skill in the art. *St. Regis Paper Co. v. Bemis Co., 193 USPQ 8.*

Employing a second band clamp would help to further brace the pipe member (20) against expansion in response to elevated gas temperatures, vibration and other external forces.

With respect to claim 3, whereby said annular packing chamber is further volume constrained and circumscribed for each said generally cylindrical resilient and elastic seal by at least two cylindrical guide rings (34/40) attached to one of said outer and inner pipe members and extended radially between said outer and inner pipe members and selected to provide a fixed initial volume for each said generally cylindrical resilient and elastic seal.

With respect to claim 4, whereby said compressive force is further selected to produce static compressive frictional forces on the contact surfaces of each said generally cylindrical resilient and elastic seal, said cylindrical guide rings, and said outer and inner pipe members to resist and prevent relative movement due to axial internal pressure, vibration, and transient operational loads.

With respect to claim 5, McHughs fails to teach that his outer and inner pipe members are composed of polymer composites. McHughs employs metal as the material for his pipe members. Nevertheless, it would have been obvious to one having ordinary skill in the art at the time the invention was made to use polymer composites to form the material of McHughs' outer and inner pipe members since it has been held to within the general skill of a worker in the art to select a known material on the basis of

its suitability for the intended use as a matter of obvious design choice. *In re Leshin, 125 USPQ 416.*

With respect to claims 6 and 7, as the claimed fluids are not positively claimed as part of the invention (the expansion joint), the Examiner has not afforded significant patentable weight to the fluids to be used in the joint. McHughs is considered to read on claims 6 and 7 insofar as McHughs' device is considered capable of transporting cryogenic fluid or rocket engine fuel reactant.

With respect to claim 8, whereby said outer circumferentially tensioned band and clamp is selected to provide means (17) for manual and power driven adjustment. The tensioning screw can be manually adjusted as by a screwdriver or adjusted by a power tool such as a drill.

Response to Arguments

Applicant's arguments with respect to claim 1 have been considered but are moot in view of the new ground(s) of rejection.

Regarding Applicant's arguments with respect to claim 4, Applicant basically argues that there is no suggestion in McHughs to employ a clamp about the outer pipe member at the seal. In response, the examiner recognizes that obviousness can only be established by combining or modifying the teachings of the prior art to produce the claimed invention where there is some teaching, suggestion, or motivation to do so found either in the references themselves or in the knowledge generally available to one of ordinary skill in the art. See *In re Fine*, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir.

1988)and *In re Jones*, 958 F.2d 347, 21 USPQ2d 1941 (Fed. Cir. 1992). In this case, the motivation to combine is found within Shafer. Shafer employs a clamp about his outer pipe member over the seal (50) in order to maintain sealing between the pipe members even when the outer pipe member tends to expand due to elevated gas temperatures (see col. 3 lines 42-50).

Regarding Applicant's arguments with respect to claim 5, it is well known that polymer matrix composites (PMC), because of their high strengths and stiffnesses, ease of molding complex shapes, high environmental resistance all coupled with low densities, make the resultant composite superior to metals for many applications. Thus, in an application where one or more of such attributes may be desirable, for instance in a device like McHughs', it would have been obvious to one having ordinary skill in the art to employ a PMC as the preferred material. And it should be understood that the skilled artisan would employ PMC as the material for pipe member (12) in addition to pipe members (20 and 24) in order to permit proper securement of the members to one another.

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to James M Hewitt whose telephone number is 703-305-0552. The examiner can normally be reached on M-F, 930am-600pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Lynne Browne can be reached on 703-308-1159. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

James M. Hewitt
Patent Examiner
Technology Center 3600